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10/772,701	02/05/2004	David P. Workman	020627.035	5615

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EXAMINER

KERNS, KEVIN P

ART UNIT PAPER NUMBER

1725

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/772,701

Applicant(s)

WORKMAN ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/5/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because the legal term "comprising" should be changed to "including" in the 1<sup>st</sup> line. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of the following informalities: on page 20, 5<sup>th</sup> line, "710" should be added after "surface" to avoid a drawing objection to Figure 12, since "710" is not present in the specification. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to independent claims 1, 15, and 21, 3<sup>rd</sup> and 6<sup>th</sup> lines of claims 1 and 15, and 9<sup>th</sup> line of claim 21, it is unclear what is meant by "the vicinity of the defect/void", as the filler slug must be placed in a void within the defect and not outside of the defect, which would also be encompassed by "the vicinity".

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 3, 6-15, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Gould et al. (US 6,545,244) or Meadowcroft (US 1,568,080) in view of Heckethorn (US 3,081,587).

Gould et al. disclose a method of conductive heat seam welding, in which the method includes the steps of providing one or more substrates (aluminum workpieces) with first and second surfaces, providing electrically conductive (steel) cover sheets (2,6) between the workpieces and the electrodes (12,14), transmitting uniform electrical current from a first electrode 14 to a second electrode 12 while applying pressure to

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form a substantially liquid pool, cooling the liquid pool to solidification under pressure of the electrodes (12,14), and removing the electrodes from contact with the metallic substrate (abstract; column 1, lines 17-24; column 2, lines 1-67; column 4, line 17 through column 9, line 67; and Figures 1-11).

Also, Meadowcroft discloses a method of electric welding, in which the method includes the steps of providing one or more substrates (aluminum workpieces 12,13) with first and second surfaces, providing electrically conductive (steel) cover sheets (14,15) between the workpieces and the electrodes (10,11), transmitting uniform electrical current from a first electrode 10 to a second electrode 11 while applying pressure to form a substantially liquid pool, cooling the liquid pool to solidification under pressure of the electrodes (10,11), and removing the electrodes from contact with the metallic substrate (page 1, lines 49-88; page 2, lines 10-130; page 3, lines 1-40; and Figures 1 and 2).

Neither Gould et al. nor Meadowcroft discloses that their methods are used for repairing a defect in a substrate by using a consumable filler slug in the defect, followed by welding.

However, Heckethorn discloses a method for repairing defects in a substrate (e.g. shock absorbers), in which the method includes providing a filler plug 60 within the opening of the substrate prior to conducting resistance welding through electrode 27, thus fusing the plug 60 in opening 32, such that the method is advantageous for fusing a plug into an opening while leaving a smooth periphery at the point of closure and

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sealing against leakage (column 1, lines 9-24 and 39-66; column 2, lines 26-72; column 3, lines 1-75; column 4, lines 1-65; and Figures 1-3).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify either of the welding methods disclosed individually by Gould et al. and Meadowcroft, by repairing a defect in a substrate by using a consumable filler slug in the defect, followed by welding, as taught by Heckethorn, in order to fuse a plug into an opening while leaving a smooth periphery at the point of closure and sealing against leakage (Heckethorn; column 1, lines 58-61; column 3, lines 53-55; and column 4, lines 10-13 and 26-28).

8. Claims 2, 5, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Gould et al. (US 6,545,244) or Meadowcroft (US 1,568,080) in view of Heckethorn (US 3,081,587), as applied to claims 1 and 15 above, and further in view of Sofue et al. (US 5,075,531).

Either Gould et al. or Meadowcroft (individually taken in view of Heckethorn) disclose and/or suggest the features of claims 1 and 15. Neither Gould et al., Meadowcroft, nor Heckethorn discloses the use of one or more sacrificial retainers located between the filler slug and one or more electrodes.

However, Sofue et al. disclose an electric resistance welding method for welding zinc plated steel plates, in which the method includes providing steel plates 7 (which include base metal 3 and zinc plated layers 2 as workpieces) between electrodes 1, such that passing electric current through electrodes 1 causes the zinc layers 2 to melt

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and coalesce into the liquid pool, thus serving as sacrificial layers/retainers, such that the zinc layer is advantageous for lowering the electric current in a shorter time without deteriorating the anti-corrosion property of the coated steel plates (abstract; column 2, lines 5-68; column 3, lines 1-17; column 5, lines 25-64; column 6, lines 14-38 and 64-68; column 8, lines 44-68; column 9, lines 1-49; and Figures 2, 4, and 12).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify either of the welding methods disclosed individually by Gould et al. and Meadowcroft, by repairing a defect in a substrate by using a consumable filler slug in the defect, followed by welding, as taught by Heckethorn, in order to fuse a plug into an opening while leaving a smooth periphery at the point of closure and sealing against leakage, and by further using one or more sacrificial retainers located between the filler slug and one or more electrodes, as disclosed by Sofue et al., in order to lower the electric current in a shorter time without deteriorating the anti-corrosion property of the coated steel plates (Sofue et al.; abstract; column 2, lines 5-8 and 46-66; and column 3, lines 8-17).

***Allowable Subject Matter***

9. Claim 21 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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10. Claims 4 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or suggest a method for repairing a defect in a metallic substrate using welding that includes the limitations of independent claims 1, 15, and 21, and further includes providing a first slug section and a second slug section, in which each of the slug sections has respective retaining lips that contain a portion that coalesces into a weld pool and a portion that remains solid to constrain a flow of the weld pool (dependent claims 4 and 18; and independent claim 21).

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 11/3/05*  
Primary Examiner  
Art Unit 1725

*KPK*

kpk

November 3, 2005